With the writer's compts.

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NOTE ON THE SMEGMA BACILLUS: ITS DIAGNOSTIC IMPORTANCE AND ITS CULTIVATION.

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THE smegma bacillus was discovered in 1885 by Matterstock,[1] and by Alvarez and Tavel,[2] independently. During the succeeding three years a large number of papers was written on the relations of the bacilli of smegma, of syphilis, and of tubercle, but since then the subject has been comparatively neglected. Although even at that time some writers indicated the possibility of its occurrence in the urine, and of its being mistaken for the tubercle bacillus, a possibility emphasised by Lustgarten and Mannaberg[3] when they found the smegma bacillus to be a normal inhabitant of the male urethra, the question does not seem to have been systematically examined[4] or thoroughly appreciated by most text-books on clinical diagnosis or on the examination of the urine, especially in this country. That the smegma bacillus frequently occurs in the urine, especially of females, had been known for some time in the Clinic Nothnagel when, at Dr. Mannaberg's suggestion, I undertook to determine the actual frequency and attempt the cultivation of the bacillus. Whilst my work was in progress a discussion in the Berlin Verein für Innere Medicin[5] showed that, although many

[1] Matterstock: Mitteilungen aus der Medicinischen Klinik der Universität, Würzburg, Band ii., p. 367.

[2] Alvarez et Tavel: Archives de Physiologie Normale et Pathologique, 1885, vol. vi., p. 303.

[3] Lustgarten und Mannaberg: Vierteljahrschrift für Dermatologie und Syphilis, 1887, p. 905.

[4] Except, perhaps, by Lésnik and Mayzel, in the practically inaccessible Gazeta Lekarska, 1891, No. 36. The abstracts give no information.

[5] Berliner Klinische Wochenschrift, 1896, p. 378.

clinical observers were aware of the facts, they considered them insufficiently well known, so that I have the less hesitation in partially repeating the observations there made.

Fifty specimens of urine from forty-seven individuals affected with various diseases (some with cystitis) were examined, ten from males and forty from females. The specimen was centrifugalised, the deposit spread on a cover-glass and stained in the usual way for tubercle bacilli with the Ziehl-Neelsen and Gabbett solutions. No smegma bacilli were found in any of the specimens obtained from males, but they have occasionally been found by other observers. Of the other specimens eleven were obtained by catheter; in none of these were any bacilli found. In the remaining twenty-nine specimens obtained in the ordinary way bacilli were found in seventeen; in the remaining twelve none were detected.

In the above numbers are included eight specimens obtained in the following way. A portion of urine was first passed in the normal manner and the remainder then withdrawn by catheter. In the case of two patients no smegma bacilli were found in either portion; in that of the other two the urine passed in the normal manner contained them, whilst the portions obtained by catheter did not.

From these numbers it would appear that the smegma bacillus is to be found but rarely in the urine of males (in spite of its presence in the urethra) and in about 59 per cent. of females (in whose urethra I was unable to demonstrate the presence of the bacillus in six specimens examined). This percentage is probably rather too low, since some of the urines, by the kindness of Professor Schauta and his assistant Dr. Wertheim, were obtained from the gynæcological out-patient room, where patients have usually washed the external genitals before presenting themselves for examination.

In tabular form the results are as follows:—

	Normal.		Catheter.	
	Found.	Not found.	Found.	Not found.
Males	—	10	—	—
Females	15	10	—	7
(Separate portions from four patients)	2	2	—	4

For purposes of diagnosis various colouring methods have been proposed and recommended by various observers, most recently of all by Grethe,[6] who recommends the use of alcoholic methylene-blue solution for decolourisation instead of an acid solution. It appears to me that erroneous results are obtained by considering the colour-capacity of the smegma bacilli to be the same whether in smegma or in urine, since they are much more easily decolourised in the latter; and also that it is unpractical to now recommend a new method for staining tubercle bacilli when, in England, at any rate, the Ziehl-Neelsen and Gabbett solutions are in almost general use. As a matter of fact, one minute's immersion in absolute alcohol is sufficient to decolourise the smegma bacilli in urine, but, *as a rule, careful catheterisation eliminates all sources of diagnostic error.* This had been previously shown by Lustgarten and Mannaberg to hold good for the male, and the above results indicate that it applies equally for the female. It is therefore unnecessary, except to localise disease when present, to catheterise the ureters as was done in the case upon which the discussion in the Berlin Society arose. On that occasion Leyden stated that the smegma bacillus could be found in nearly every urine and that it never showed the irregularities of the tubercle bacillus. I was not fortunate, or, perhaps, not industrious enough to confirm the first statement by very thoroughly examining two cover-glass specimens in each case where no bacilli were found. The second statement is certainly not absolutely correct, for irregular specimens of the smegma bacillus exactly resembling the tubercle bacillus are to be found. As a rule, however, the former have a regular contour and more angular extremities than the latter, and, as has been frequently pointed out, occur in small groups or on shed epithelial cells. So that, all points taken into consideration—viz., their shape and grouping, their easy decolourisation by alcohol, and, principally, their absence in the urine obtained by catheter—the distinction does not present insuperable difficulties.

So far as I am aware no bacillus which gives the colour reactions of the tubercle bacillus has hitherto been cultivated from smegma. After trying many culture media I succeeded in growing in milk (but not in obtaining a pure culture) a bacillus which stained red with carbol-fuchsin, and was not decolourised in two minutes by Gabbett's

[6] Grethe, Fortschritte der Medicin, p. 328, 1896.

solution. Although it may be that the fat in the culture medium assists the growth and composition I do not think that it causes the colour reaction, as suggested for other bacilli by Bienstock[7] and Gottstein,[8] because the other cocci and bacilli (one of which, a short, slender bacillus, easily isolated on gelatin, causing coagulation of milk, and constantly present) do not retain the red stain. Some effect may be due to the culture medium, since a bacillus, resembling that of smegma, which grows on agar serum, gives the colour reaction partially. This side issue is the more interesting since latterly tubercle bacilli (dried) have been found to contain 37 per cent. fat. In milk the bacillus assumes the short, rather plump form found in the smegma of the male, as compared with the rather more slender form found generally in the smegma of the female. Unfortunately, cultivation cannot be used for diagnostic purposes, since it will not grow from every urine in which it is present.

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7 Bienstock, ibid, 1886, p. 193.
8 Gottstein, ibid, 1886, p. 249.

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